Rural Mobility for Older Adults: Matching Georgia's Future Needs with Potential Capacity for Volunteer Driver Programs

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The Problem: A Demographic Shift towards an Aging Population

The population of Americans over the age of 65 ("older adults") is steadily increasing. 2017 American Community Survey 5-Year Estimates show that 14.9 percent of the population is 65 and over, and the current 45-65 cohort represents 26.1 percent of population (U.S. Census Bureau, 2017). In 2014, The Department of Health and Human Services projected that the number of persons 65 and older will be 56.4 million by 2020, 82.3 million by 2040, and 98.2 million by 2060. In Georgia, the 65 and over population increased by nearly 45 percent between 2003 and 2013. Of the 2014 national population 65 and over, there were major gender differences: there were over three times as many widows as widowers, and 11.6 percent of older women lived in poverty compared to 6.8 percent of older men. The population of older adults living alone is more likely to be living in poverty than persons living with families, representing 16.7 percent and 6.2 percent of older adults respectively. In Georgia, nearly 11 percent of the older population is below the poverty level (U.S. Department of Health and Human Services, 2014).

The population of individuals over 85 (referred to in literature as the "Oldest Old") will increase by 250% between 2015 and 2050 (Lee, Ward, Miller, D'Ambrosio, & Coughlin, 2019). Individuals have healthier lifestyles than past generations, but traveling may take more time, effort, planning, and determination. However, maintaining the ability to stay active is vital for remaining independent. Challenges include health and functional abilities: 73% of individuals over 85 have at least one disability, and 42% have three or more disabilities (U.S. Census Bureau, 2014). Between 2011 and 2013, the most frequent conditions among individuals 65 and older were arthritis (49 percent of older adults), heart disease (31 percent of older adults), cancer (25 percent of older adults), diabetes (21 percent of older adults), and hypertension (71 percent of older adults). In addition, 36 percent of older adults reported having some type of disability; ambulatory disabilities were the most frequently reported at 23 percent (U.S. Department of Health and Human Services, 2014).

Although populations are aging, people are not necessarily moving geographically. Older adults are less likely to move residences than any other age group, representing 3 percent of relocations compared to 13 percent for the whole population. Of older adults who moved, 60 percent stayed in the same county and 81 percent stayed in the same state (U.S. Department of Health and Human Services, 2014). According to AARP's Home and Community Preferences Survey (2018), 77 percent of adults age 50 and above want to stay in their community, and 76 percent want to remain in their current homes for as long as possible. These trends equate to larger populations of older adults aging in the communities where they currently live. Adults who are 60 years old in 2019 will live (or at least want to live) in the same place when they are 80 years old in 2039 and 90 years old in 2049.

Mobility and Social Isolation

A key aspect of life for aging adults is the ability to stay mobile, but age-related changes in health and physical functioning make mobility increasingly dependent on the built environment. Older adult mobility is dependent on individual variables, environmental variables, and the interaction between the two. Mobility limitations often lead to decreased participation in social life, which in turn leads to additional mobility limitations; the interaction between the two is cyclical and self-perpetuating in the absence of intervention (Chudyk, Sims-Gold, Ashe, Winters, & McKay, 2017). The Association for the Advancement of Retired People (AARP) cites social isolation in older adults as a public health epidemic that affects 1 in 5 Americans, leading to higher blood pressure, greater susceptibility to infectious diseases, and dementia. Prolonged social isolation is as harmful as smoking 15 cigarettes a day and is worse than obesity, and there is a proven relationship between social involvement, physical health, and decreased cognitive decline (Frank, 2018; Vogelsang, 2016).

Risk factors for social isolation include physical and mental health conditions, low income, lost ability to drive, losing a spouse to death or divorce, belonging to a minority racial, ethnic, or other identity group, physical barriers to community resources, lack of accessible transportation, and limited social opportunities (Weldrick & Grenier, 2018). Studies conclude that quality of life correlates more with the number of unmet trip needs than on the number of trips taken (Plazinic & Jovic, 2018). Recognizing the severity and prevalence of the issue, the World Health Organization (WHO) started to promote age-friendly cities and communities in 2006, focusing on the physical and social environment (Manec, et al., 2015). The WHO established eight Domains of Livability that age-friendly communities must embrace, and half of these Domains focus on combatting isolation. These are transportation, social participation, community support and health services, and communication and information (Habersham & Perumbeti, 2019).

Mobility Barriers in Rural Communities

Despite the World Health Organization recognizing aging populations as a growing demographic group, age-friendly planning continues to focus on urban areas rather than rural communities (Manec, et al., 2015). This is a problem because rural communities tend to have a disproportionately high number of older adults, a trend that will likely continue in future decades due to out-migration of working-aged adults, preference of older cohorts to age in place, and increased lifespans (Eby et al., 2012). Due to differences in population density, network connectivity, public resource availability, and demographic tendencies, mobility in rural communities is often more limited than in suburban or urban communities. Rural older populations are most likely to travel to grocery stores, healthcare facilities and financial institutions like post offices and banks, considered “necessary” and most important trip types. When resources are located in a different town or urban center, travel time, transportation costs, and social capital needs become larger obstacles (Ahern & Hine, 2012; Bacsu, et al., 2014).

Bacsu, et al. identify important factors in policy-level interventions to enable seniors to age in their homes and communities. Mobility-related factors are built environment (including road and sidewalk conditions that permit mobility independence), public transportation (including clear and available information about cost and routes, increased time and frequency of service to major cities, and more transit availability to access medical appointments), and health services (including access to consolidated health services in urban centers and affordability of emergency transport). Other important interventions are at the community level. These include physical activity (especially during the winter when walking outside in icy conditions is unfavorable), and access to social centers like churches and senior centers (Bacsu, et al., 2014).

Participation in religious, arts, and cultural activities showed correlation with health improvement, but these findings were only significant among rural populations. This may indicate the increased benefits conferred when rural residents gain access to farther or less frequently visited resources (Vogelsang, 2016). In contrast to these demonstrated differences between rural and urban-dwelling older adults, Therrian and Desrosiers found no difference in the overall participation in daily activities and social roles among rural and urban residents. In fact, the researchers found that rural residents were more likely to be satisfied with their social support networks. However, this is likely due to the study's demographics: none of the participants had impairing disabilities, and a larger proportion of rural residents drove a car (Therrian & Desrosiers, 2009). Ability to drive and availability of an auto are key determinants of rural mobility, discussed below.

Auto Use in Rural Communities

Rural residents tend to continue driving later in life than urban and suburban residents due to a lack of alternative transportation modes. Recreational activities are often limited to the rural elderly population that is still able to drive. In fact, it is a significant life milestone when an

individual stops driving and often represents a loss of independence (Ahern & Hine, 2012). Older people tend to prefer transportation by personal car and only stop driving when difficulties arise from medical conditions or physical limitations such as vision or hearing loss. The literature makes a distinction between the "youngest-old" and the "oldest-old," citing 80 as the age cutoff where the number of vehicles and licensed drivers decrease, health issues increase, people take fewer trips, and individuals are less likely to have a caregiver living in the household (Eby, et al., 2012; Shergold, Parkhurst, & Musselwhite, 2012). These differences are particularly pronounced among women: females will on average live 10 years past their safe driving age while men will live an average of six years past their safe driving age. Women are also more likely to be older and unmarried, less likely to hold a license or have access to a car and tend to drive less overall but be more aware of transportation options (Eby, et al., 2012; Hess, Norton, Park, & Street, 2016).

Most behavior shifts associated with aging occur around age 75, indicating that 65 and older may not be an accurate age group when discussing mobility differences (Lee, et al., 2019). Less than half of the population over 75 drives almost every day (Lee et al., 2019; The Urban Institute, 2018). Social isolation becomes a more acute risk with increasing age, and declining birthrates and increased geographic dispersion make family members a less reliable source of care. Paratransit rates are expensive, have limited functionality based on funding regulations, and may have a social stigma for potential passengers. Private vehicles remain the primary option among the Oldest Old, and the mode is preferred as either a passenger or driver. (Lee et al., 2019).

There will be a sharp increase in the number of adults over 85 in the coming age, and this will represent a surge in the number of "oldest-old" living in rural communities (Eby, et a., 2012). As a greater proportion of drivers approach unsafe driving ages, the built environment will become a more noticeable barrier: older drivers in rural settings tend to feel unsafe on roads without shoulders, roads with animal crossing and roundabouts, and on rights-of-way that are shared with farm equipment. As a result, driving habits shift towards driving during the day, in good weather,

and on low-traffic roads as well as favoring highways over country roads, signaling and merging early, driving at lower speeds, and avoiding busy or uncontrolled intersections (Payyandan, Gibson, Chiou, Gazizaden, & Lee, 2016).

Transportation Planning for Rural Mobility

The population is steadily aging, which means there will soon be more seniors with disabilities who need mobility assistance (Marx, Davis, Miftari, Salamone, & Weise, 2010). Although rural communities may have stronger community connections than urban environments, which can increase likelihood of assistance from friends, family and neighbors, older individuals are often concerned about overburdening loved ones with transportation and care needs (Manec, et al., 2015; Marx, Davis, Miftari, Salamone, & Weise, 2010). There must, then, be measures in place to augment assistance from an existing social network. To meet this need, rural transportation planning best practices encompass physical, programmatic, and educational elements in order to address a large-scale need with few resources.

Physical Planning

To address the increased crash rates that come with driving with age-related physical and cognitive impairments, infrastructure that enhances the road environment can increase safety. Features like well-lit roads, wide shoulders, and signalized intersections make older drivers feel more comfortable and can reduce risk of auto accidents (Pyyandan, Gibson, Chiou, Gazizaden, & Lee, 2016). Intelligent Transportation Systems (ITS) can also decrease human error and lower the likelihood of crashes. Physical planning solutions can include alternatives to auto travel. In general, these types of solutions include fixed-route public transit, paratransit, and private transit. However, many of these solutions do not accommodate riders who have trouble walking to transit stops (Eby, et al., 2012). The literature also proposes transportation options such as walking, biking, and use of golf carts, but neighborhoods oriented towards car travel become highly inaccessible during snowy

and icy conditions. Despite the promising findings that people living in more walkable neighborhoods walk to more destinations, providing wide, continuous sidewalks that can be easily cleared of snow and ice will not necessarily help rural residents where houses are too far from destinations to walk (Clarke, et al., 2017).

Educational Component

Older adults within a community are likely to have different levels of information and knowledge about available car alternatives, due in large part to differences in computer and/or internet access and literacy (Shergold, Parkhurst, & Musselwhite, 2012; Ryser & Halseth, 2018). Both local and regional systems must provide information to system users to teach people how to use the specific system, know what additional options exist, and understand what to expect upon reaching a destination via transportation (Eby, et al., 2012; Ryser & Halseth, 2018).

Programmatic Strategies

Regional transportation systems are often sparse, leaving seniors with the financial and transportation responsibility of getting to the origin point of the service. There also tends to be a lack of regional transportation available for non-medical trips (Ryser & Halseth, 2018). Social and community activities are considered "non-essential" do not fall within permitted paratransit services. It is therefore important that trips are available to get people to social and community activities that help to minimize social isolation (Shergold, Parkhurst, & Musselwhite, 2012). There is some funding available to nonprofit organizations that provide transportation where public transit options are unavailable or insufficient. States are also required to provide funding to people eligible for Medicaid. However, inconsistent transportation coordination results in a "transportation disadvantaged" population. Increasing program functionality and coordination is vital for maximizing rural mobility.

There are three general methods of regional transportation coordination. Coordinated planning combines human services and transportation agencies to provide both the human capacity and the technical knowledge to provide adequate resources. Shared vehicle services operate with a limited number of transit vehicles that are used in all associated systems. Lastly, a brokerage system functions with one central agency serving as the point of contact for ride information and trip coordination among multiple programs. These methods are not mutually exclusive, and many regions with few human, financial, and vehicular resources utilize at least one strategy (Marx, Davis, Miftari, Salamone, & Weise, 2010). Also due to lack of resources, regional and national funds, coordination, and assistance are important (Manec, et al., 2015).

Perhaps one of the biggest opportunity areas for rural mobility, and the one that I will explore in the most depth in this paper, is a car-based Volunteer Driver Program (VDP). VDPs focus on providing rides for particular demographic groups such as seniors or disabled individuals. Volunteer drivers typically utilize their own vehicles and report to a non-profit organization or social services group. Ride cost is relatively low compared to paratransit: VDP rides cost an average of $7.73, while paratransit rides cost an average of $37.94. VDPs can operate across jurisdictions, creating opportunities for regional or multi-county transportation networks (Hanson, 2013).

Gap in Literature

The existing literature illustrates that age demographics are shifting towards an older population, and mobility and social isolation are intertwined problems for older adults. These issues will be especially prevalent in rural communities, where older adults will become a proportionately larger segment of the population, there are fewer mobility options, and driving at older ages is common in order to retain mobility for as long as possible.

All of these components are important now for aging populations but will become critical in the coming decades when the population is comprised of more of the Oldest Old for whom driving

is truly no longer an option. Communities will need solutions for providing "non-essential" trips that will continue to foster rural social and community inclusion and prevent social isolation. In sum, it is the rural communities that will see the greatest future need but have the fewest resources to address the problem.

Unanswered Questions: Georgia Context

As the population of Georgia continues to age and lifespans continue to increase, the proportion of older residents will become a larger segment of the population. Transportation demands will increase, and it will be particularly important to meet needs for social and community inclusion in order to prevent social isolation and its negative physical and cognitive consequences.

This paper is focused on evaluating Georgia's counties to determine where VDTs can be most successful. As of 2019, there are eight VTD programs within Georgia, three of which are in the City of Atlanta and two of which are in the City of Decatur. The remaining three programs are all within the Atlanta metropolitan region (Dickenson, n.d.). To meet coming need, rural portions of the state will need to adapt and prepare to create supplemental transportation programs. This paper presents an inventory of Georgia's 159 counties over the next three decades to determine most needed and effective locations for VDTs. The primary focus for analysis is on identifying counties with the highest level of both need and capacity.

The following sections will discuss methodology for determining which counties have high need and capacity for VDTs in 2015, 2030, 2040, and 2050. I will present findings that identify most promising counties for volunteer driving programs during these time periods. I will also identify the counties that should begin to develop a volunteer program before they reach peak need. Finally, I will discuss policy implications and implementation recommendations for the identified counties.

Methodology

There are two sides to the volunteer driver problem: counties with successful programs need enough ridership to justify funding and need, and they also need enough volunteers to sustain the service. It is important, when evaluating counties with highest likelihood of VDT success, to consider both the need for a program and the volunteer capacity to support the program. The following criteria for both need and capacity determinations are based on limited data on volunteer driver populations and are three of many criteria that could be used for county-level projections. However, these are the variables that appear most often in reports on volunteer recruitment and program participation.

Need Criteria

Based on literature review, I established three criteria for determining whether a county has sufficient need to warrant a VDT. These criteria were:

1) **The county is rural.** The purpose of this analysis is to evaluate the effectiveness of a VDT in rural areas, so counties that are considered "rural" were designated "high need". There are many different definitions of rural; for this analysis I used the definition utilized by the Rural Hospital Organization Assistance Act of 2017. This standard focuses on accessibility to healthcare facilities and establishes rural density at the county level. Georgia counties with a population of less than 50,000 are given a rural designation. The data source for this criterion was the State Office of Rural Health's map of statutorily designated counties (SORH, 2017).
2) **Proportion of the population between the ages of 65 and 85.** Although people are remaining healthier and physically able for longer, age 65 continues to be the age at which most literature indicates declines in mobility (Chudyk, et al., 2017; Therrien & Dosrosieres, 2009; The Urban Institute, 2014; U.S. Department of Health and Human Services, 2014). In addition, data from the Federal Highway Administration (2017) shows that more drivers start to drive less

annually around age 65 (see Figure 1, where horizontal dashed lines represent the mean proportion of drivers across age groups). The data source for this criterion was the Georgia Governor's Office of Planning and Budget (2018)'s county projections by age from 2015 to 2050.

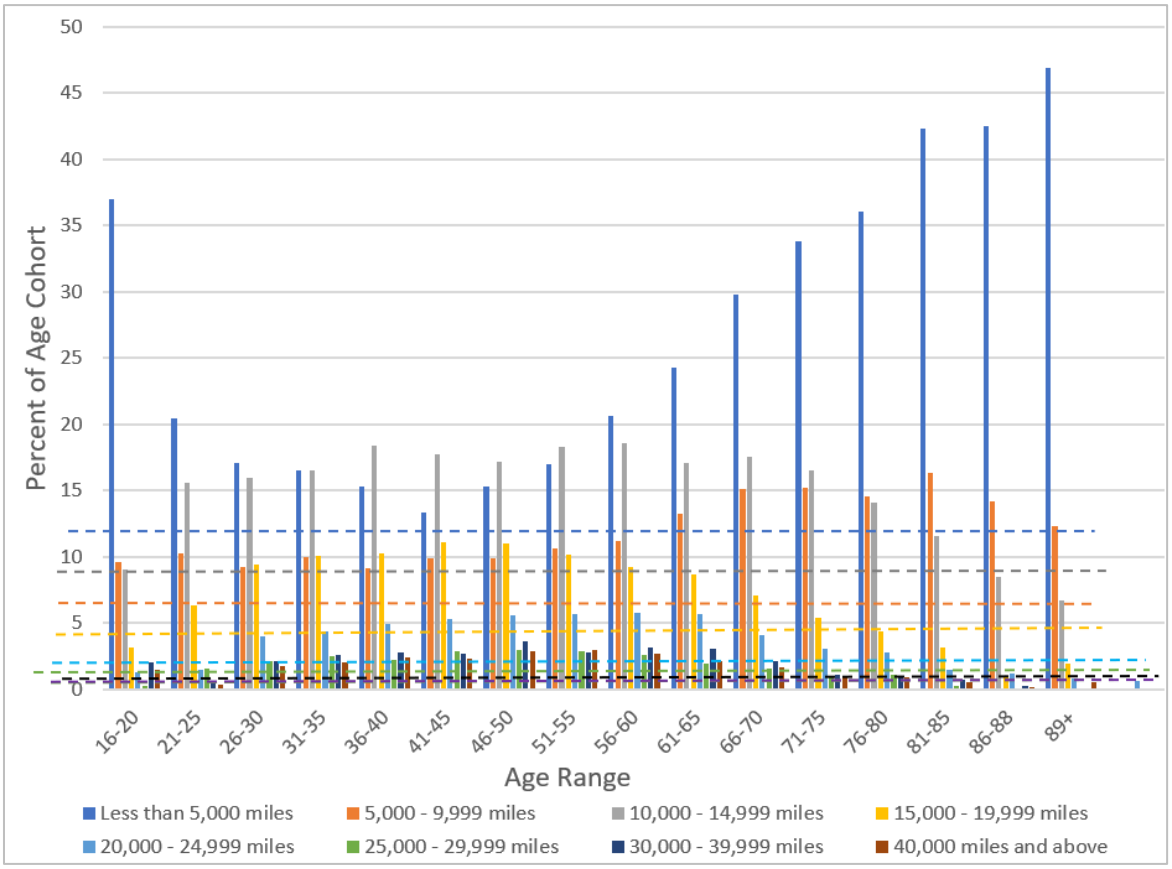

Figure 1. Annual distance driven in the United States, reported by age group and proportion of the age cohort.

3) **Proportion of the population ages 85 and over.** The proportion of a county's population that is the Oldest Old warrants special attention because of this age group's increased incidence of physical disability and rapidly declining propensity to drive, evident in Figure 1. (Federal Highway Administration, 2017; U.S. Census Bureau, 2014). The Oldest Old are likely to require the largest amount of transportation assistance, creating a separate criterion for this age group can flag a county as one with particularly high need. The data source for this criterion was the

Georgia Governor's Office of Planning and Budget (2018)'s county projections by age from 2015 to 2050.

Capacity Criteria

Based on literature review, I also established three criteria for determining whether a county has the capacity to support a robust and successful VDT. These criteria were:

1) **Proportion of the population between the ages of 55 and 75.** Although volunteer drivers can be, and are, all ages, volunteers between the ages of 55 and 75 tend to contribute the greatest number of hours. In Hanson (2017)'s findings, number of volunteer drivers ages 55 and older have continually increased over time, while volunteer drivers aged 15-34 continually decrease. Further, drivers aged 65-74 dedicated the greatest number of overall hours, and drivers aged 55-64 contributed the greatest number of hours overall. Hanson's study was conducted in Canada, but results are likely applicable to the United States as well based on data from the National Volunteer Transportation Center (NVTC). The NVTC's handbook states that the majority of volunteer drivers are over 65 years old and cites senior centers and senior volunteer programs as some of the most successful recruitment venues. Conversely, the NVTC notes that individuals who work full time or care for small children are unlikely to participate in a VDP (NVTC, 2016). The data source for this criterion was the Georgia Governor's Office of Planning and Budget (2018)'s county projections by age from 2015 to 2050.
2) **Proportion of the population with an annual household income of $75,000 or greater.** As of 2006, data on VDPs showed that drivers tend to have annual household incomes over $60,000 per year, and 60 percent of volunteer drivers have incomes over $30,000 per year (NVTC, 2016). In 2019, this equates to a household income of $75,230.95 and an individual income of $37,615.48 (Coinnews Media Group LLC, 2018). Because income projections by county are not available, I used U.S. Census data from 2010, 2013, 2015, and 2017 to find the

average population proportion in each income category in every Georgia county. I assumed that the proportion of people in each county in each income category would remain consistent through 2050. The data sources for this criterion were U.S. Census Bureau statistics for *Income in the past 12 months, American Community Survey 5-year estimates* (2010, 2013, 2015, 2017).

3) **Proportion of households with at least one available vehicle.** Volunteer Driver Programs rely on volunteers using their own cars. Counties where more households have available cars are more likely to be able to volunteer to drive. Because vehicle ownership projections by county are not available, I used U.S. Census data from 2010, 2013, 2015, and 2017 to find the average proportion of households with an available vehicle in each Georgia county. I assumed that the proportion of households would remain consistent through 2050. The data sources for this criterion were U.S. Census Bureau statistics for *Household size by vehicles available, American Community Survey 5-year estimates* (2010, 2013, 2015, 2017).

Setting Data Thresholds

After determining population characteristics that demonstrate need for a VDT, I set data thresholds for each criterion to separate counties with acute need, high need, and no designation. To designate a county as being over the acute need thresholds for the "Rural" criterion, the population had to be less than 50,000. This was based on the Rural Hospital Organization Assistance Act's rural designation (SORH, 2017). The Rural criterion is unique in this study in that it is the only need or capacity category that is either "acute" or "no designation." Because the scope of this paper is to examine needs in rural communities, a rural population count was enough to flag that county as one with acute need without any intermediate levels or measures.

The other two need criteria, "Percent Population Ages 65-85 and "Percent Population Ages 85+", had thresholds for high and acute need. These thresholds came from analysis of natural breaks in the 2050 population data, which has the widest ranges and highest maxima for all data

sets. By setting need thresholds using 2050 data and applying these to data from earlier decades, it will be evident which counties will be in greatest need first as well as which counties will gradually shift towards more acute need as time goes on. See Table 1 for all need criteria thresholds.

Need Criteria			
	Rural County	**% Pop. Ages 65-85**	**% Pop. Ages 85+**
Threshold: Acute	Pop. < 50,000	> 30%	> 5%
Threshold: High	Pop. > 50,000	> 20%	> 4%
No Designation	Pop. > 50,000	< 20%	< 4%

Table 1. Population thresholds designating high and acute need in each Georgia county.

I determined capacity criteria using the same analysis method as for need criteria, setting thresholds based on natural breaks in 2050 population, household income, and vehicle ownership data. See Table 2 for all capacity criteria thresholds.

Capacity Criteria			
	% Pop. Ages 55-75	**Gross Household Income >$75,000**	**% Households with Vehicle Ownership**
Threshold: Very High	> 35%	> 30%	> 95%
Threshold: High	> 25%	> 25%	> 90%
No Designation	< 25%	< 25%	< 90%

Table 2. Population thresholds designating high and very high capacity in each Georgia county.

Data Analysis

I Assigned scores to counties with high and acute need (4 and 5 respectively) and high and very high capacity (4 and 5 respectively). I then took sums of need and capacity scores. Possible score ranges were:

(0, 4, 5): The county does not demonstrate high need or only has high/acute need in one criterion. This could reflect a large older population in an urban county or a smaller older population in a rural county. OR, the county does not demonstrate capacity or only demonstrates a high/very high capacity in one criterion (ages 55-75, income over $75,000, or household vehicle availability).

(8, 9 10): The county has a high or acute need on two out of three criteria. This could reflect a large older population in a rural area but a smaller population of oldest old. This could also reflect high or acute older and oldest old populations in an urban county. OR, the county has a high or very high level of capacity in two out of three criteria.

(12, 13, 14, 15): The county has a high or acute need on all three dimensions. OR, the county has high or very high capacity in all three criteria.

I then assigned a final score to each county (see Table 3).

	Need (0, 4, 5)	**Need (8, 9, 10)**	**Need (12, 13, 14, 15)**
Capacity (0, 4, 5)	1	4	7
Capacity (8, 9, 10)	2	5	8
Capacity (12, 13, 14, 15)	3	6	9

Table 3. Numbering scheme for need/capacity scores.

Each score represents a different balance of need and capacity (see Table 4) which, when applied to each county for 2015, 2030, 2040, and 2050 data, illustrate locations for programmatic implementation at different points in time.

1: Low need, low capacity	4: Moderate need, low capacity	7: High need, low capacity
2: Low need, moderate capacity	5: Moderate need, moderate capacity	8: High need, moderate capacity
3: Low need, high capacity	6: Moderate need, high capacity	9: High need, high capacity

Table 4. Need/capacity matrix.

For this paper, I was most interested in identifying the counties with high need and high capacity and the counties with moderate need and high capacity for VDPs. These are the counties for which a volunteer driver program is most feasible. I was also interested in the counties that will transition from moderate need and high capacity to high need and high capacity. These are counties for which a VDP could begin at a smaller scale and grow at a pace that matches increasing demand. Finally, I looked at the counties that will transition from moderate need and high capacity to high need and moderate capacity. These are the counties for which eventually declining capacity will require early momentum for a robust program.

Results

A cursory look at Figure 2 reveals a steady decadal shift in need throughout the state. It is clear that Georgia did not have high or acute need for VDPs in 2015, but counties will transition towards moderate need in 2030, a mix of moderate and high need in 2040, and the largest number of high need counties in 2050. Capacity has less of a clear trend and oscillates between low, moderate, and high for many counties.

Figure 3 through Figure 6 show more detailed representations of each county's need/capacity transition, with indications of which counties will eventually reach high need and high capacity. Often, counties that reach high need and high capacity in 2050 reached this status incrementally throughout the decades.

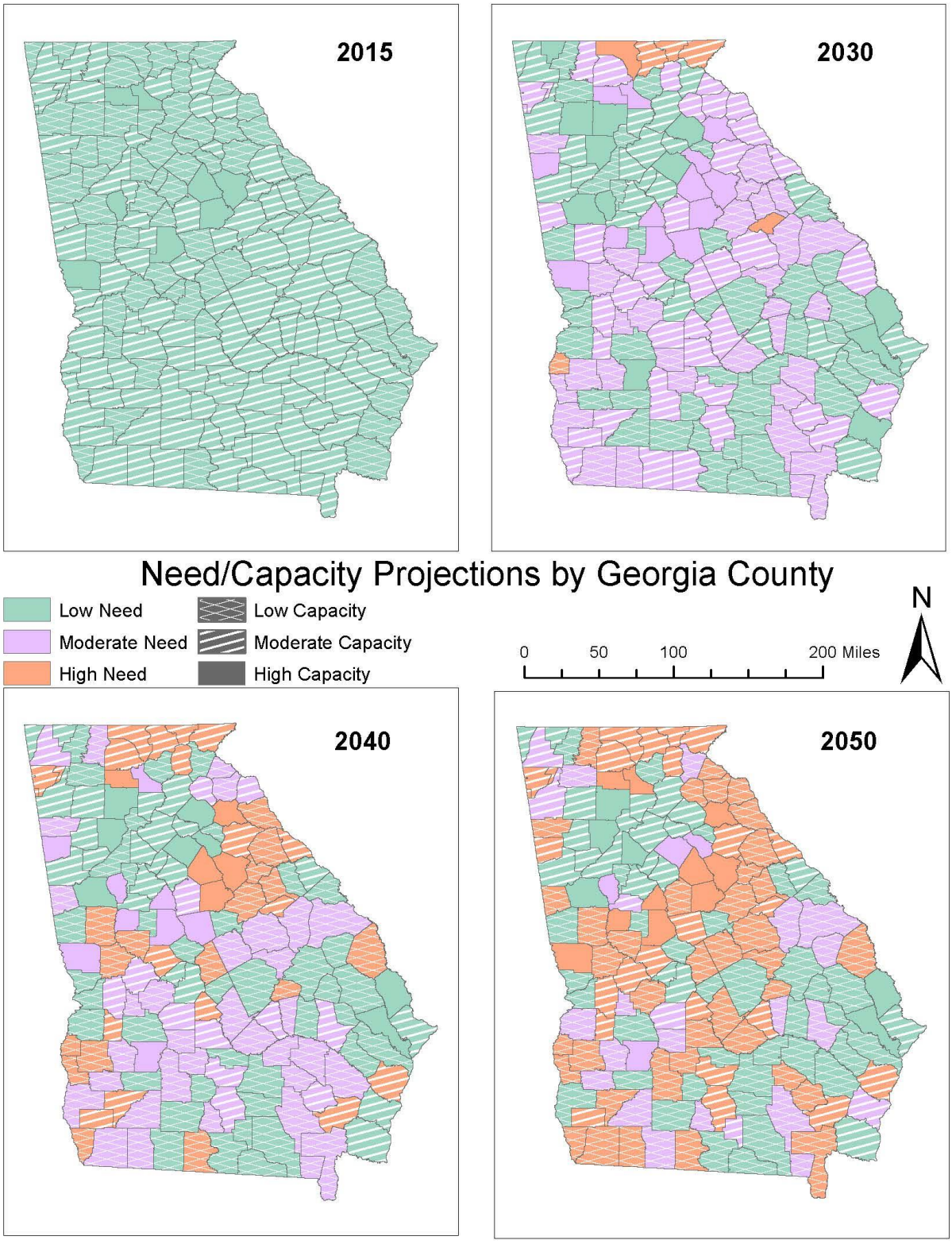

Figure 2. Georgia counties' need/capacity transition from 2015 to 2050.

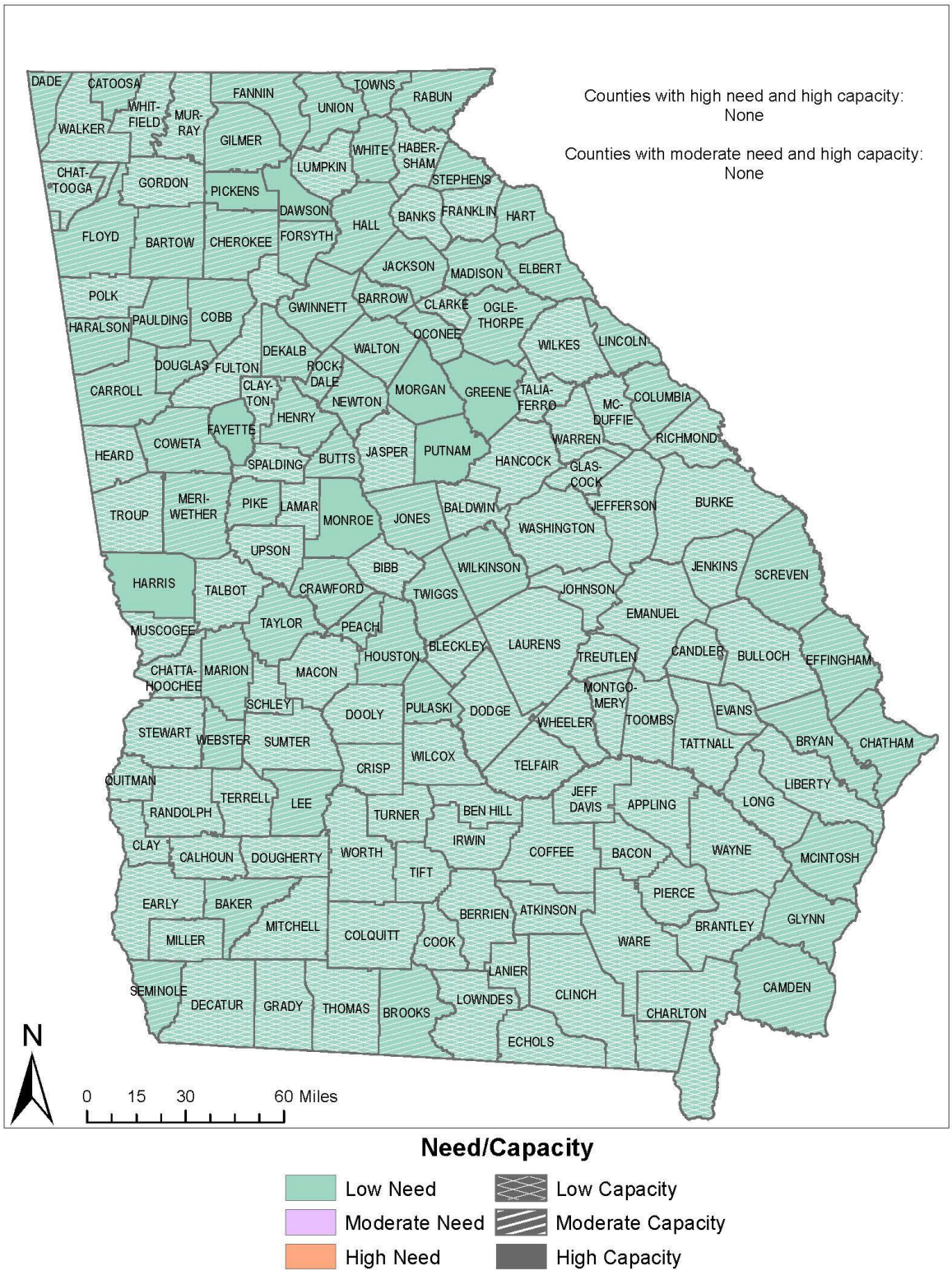

Figure 3. 2015 need/capacity by Georgia county.

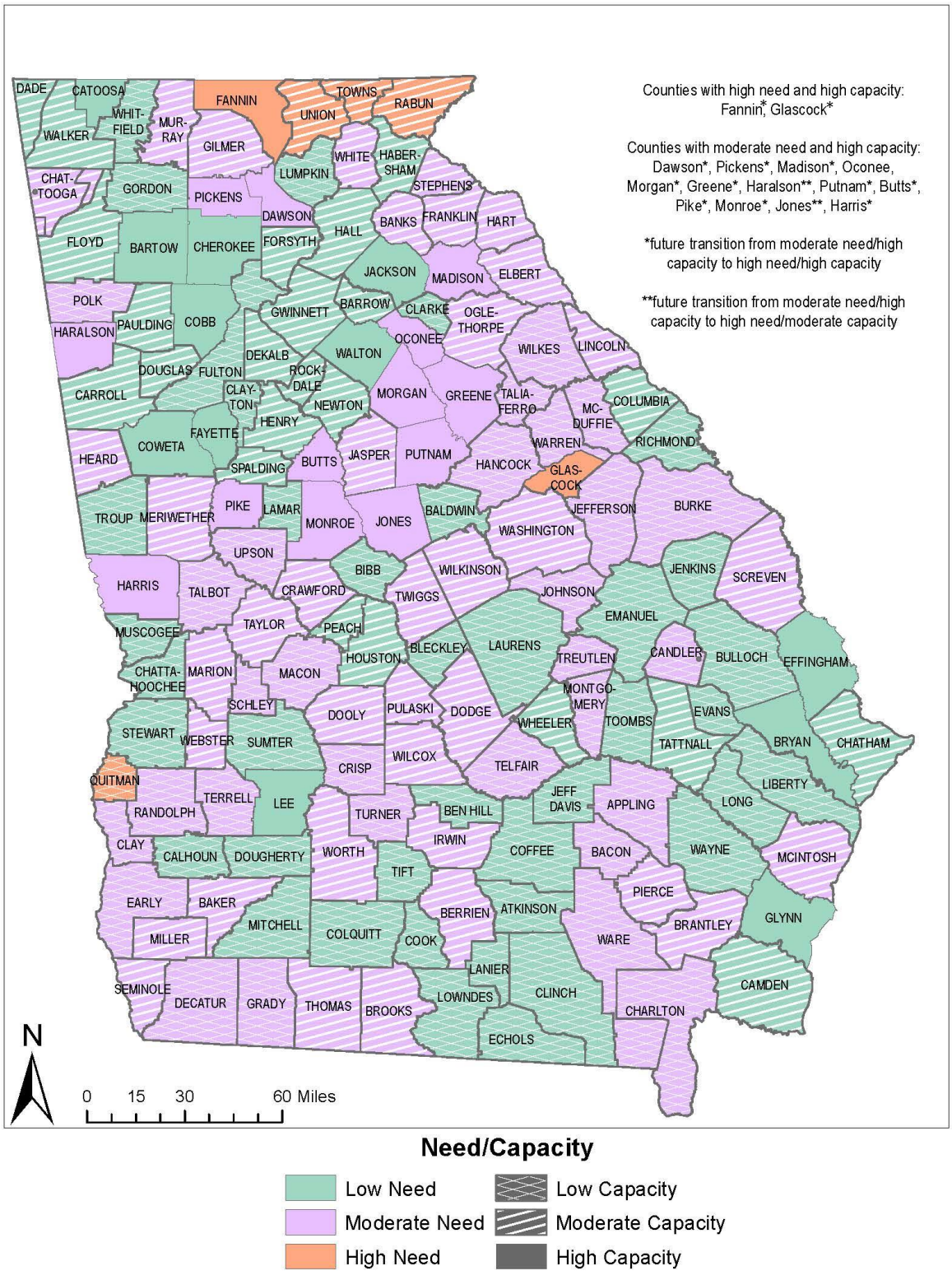

Figure 4. 2030 need/capacity projections by Georgia county.

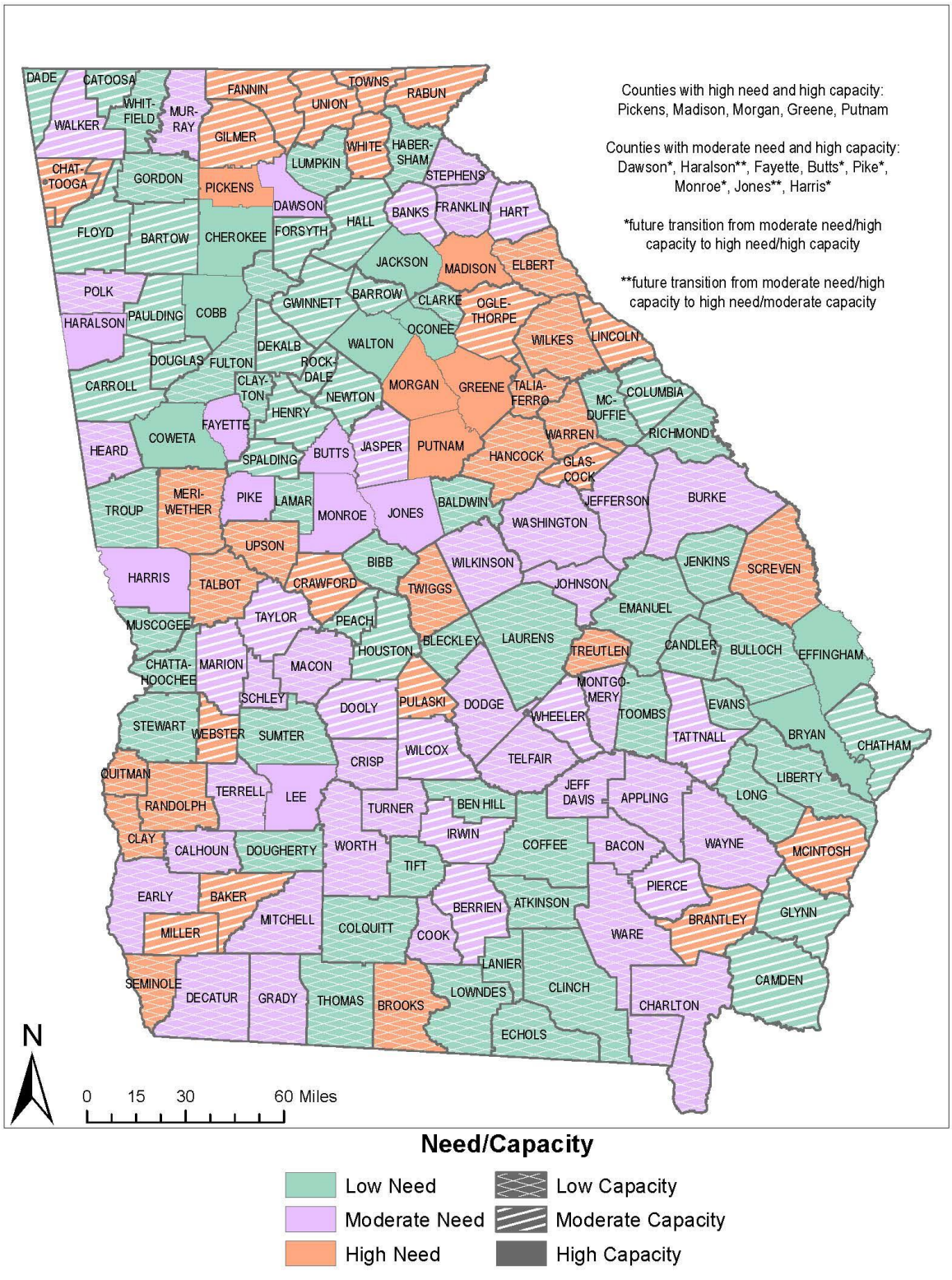

Figure 5. 2040 need/capacity projections by Georgia county.

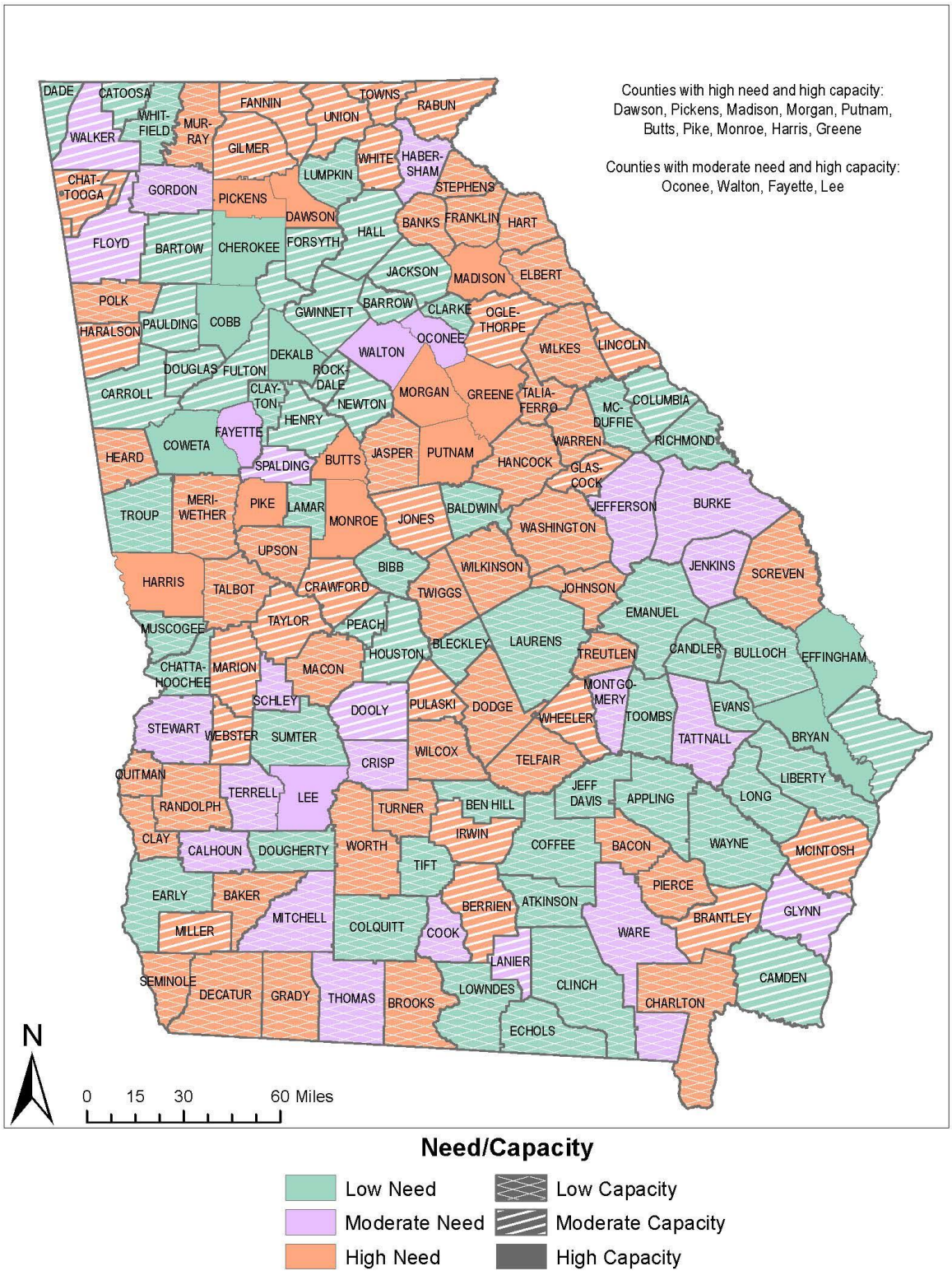

Figure 6. 2050 need/capacity projections by Georgia County.

Table 5. highlights the counties with notable characteristics that may lend themselves to VDT success at various points in time. These counties fall into several categories discussed on pages 26 and 27:

2015
High need/high capacity
None
Moderate need/ high capacity
None
2030
High need/high capacity
Fannin
Glascock
Moderate need/ high capacity
Dawson*
Pickens*
Madison*
Oconee
Morgan*
Greene*
Haralson**
Putnam*
Butts*
Pike*
Monroe*
Jones**
Harris*
2040
High need/high capacity
Pickens
Madison
Morgan
Greene
Putnam

Moderate need/ high capacity
Dawson*
Haralson**
Fayette
Butts*
Pike*
Monroe*
Jones**
Harris*
2050
High need/high capacity
Dawson
Pickens
Madison
Morgan
Putnam
Butts
Pike
Monroe
Harris
Greene
Oconee
Walton
Fayette
Lee

*Future transition from moderate need/high capacity to high need/high capacity

**Future transition from moderate need/high capacity to high need/moderate capacity

Table 5. Counties most in need and with highest capacity for a VDP at several time points.

Counties with both high need and high capacity for a volunteer driver program. There were no counties in 2015 that fit this description with the established criteria. However, by 2030 Fannin and Glascock have met selected thresholds. These two counties should be among the first to establish VDPs and should begin to lay the groundwork for program capacity and funding sources in the next several years. By 2040, five counties will meet the selected thresholds. Pickens, Madison, Morgan, Green, and Putnam Counties fall into this category. In 2050, the number of counties best positioned for VDPs increases to nine, illustrating Georgia's increasing potential for supplemental transportation services for older adults in rural regions.

Counties that will transition from moderate need/high capacity to high need/high capacity. These are counties with the opportunity to establish a small volunteer program while demand is relatively low, then grow the program as need increases. This could increase program sustainability and longevity. All of the counties with moderate need and high capacity in 2030 fall into this category. Early planning and foresight will be especially important in these locations.

Counties that will transition from moderate need and high capacity to high need and moderate capacity. These are counties with the opportunity for regional or multi-county programs. Counties can start the program while need is moderate to establish momentum, increase the program size as need increases to high.

Haralson and Jones Counties are the two examples of a transition from moderate need to high need while maintaining moderate capacity. In 2030, Haralson County has proportionally higher need and capacity than its surrounding counties. However, Paulding, Cobb, Douglas, and Carroll counties all have relatively low need and moderate capacity (see Figure 7). It may be feasible to set up a regional volunteer driver program in which drivers from neighboring counties assist with trips in Haralson as well as their own counties. This could set Haralson County up for greater success in 2050 after having already set a precedent for assistance from bordering areas.

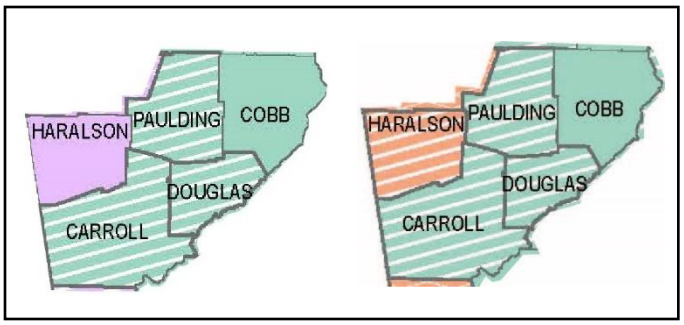

Figure 7. Haralson and surrounding counties in 2030 (left) and 2050 (right).

In contrast, Jones County has similar 2030 need and capacity characteristics in comparison to Butts, Putnam, and Monroe Counties. However, Monroe, Butts, and Putnam Counties retain high capacity through 2050, while Jones County's capacity decreases. A regional VDP could greatly benefit all neighboring counties if drivers participate across borders and share their capacity.

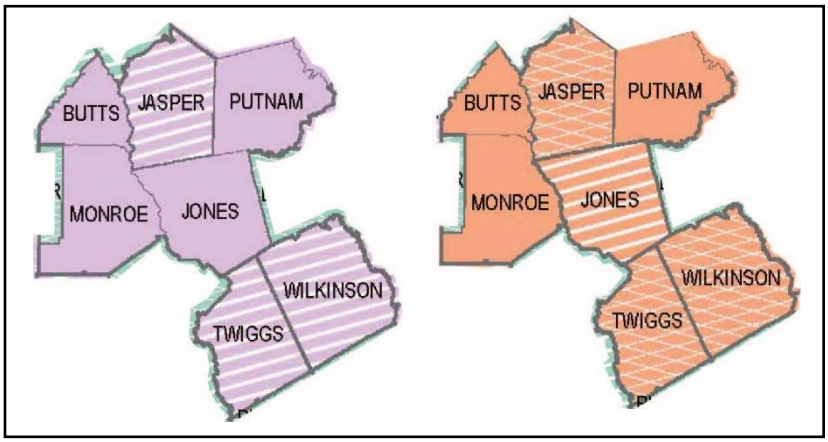

Figure 8. Jones and surrounding counties in 2030 (left) and 2050 (right).

Fannin and Glascock Counties fall into a similar category, where their levels of need will start high in 2030 and remain high in 2040, but their capacities will decrease from high to moderate. It is important, that Fannin and Glascock establish a robust and sustainable program while they have the population capacity in order to maintain momentum when proportional capacity dwindles. The two counties should also consider regional approaches to community-based transit to access additional drivers once county-specific capacity decreases.

Policy Implications

Establishing a successful volunteer driver program will require a dedicated funding stream to provide for alternative senior transportation services (Dobbs, Shirgaokar, Anderson, & Hussey, 2019). Whether through the County's annual budget or through a newly formed non-profit organization, administrative funding and gas reimbursements are paramount to program success and longevity (Habersham & Perumbeti, 2019; Hanson and Goudreau, 2019).

Key components of successful VDPs include a ride dispatcher and a sufficiently large volunteer pool to meet the needs of the program's catchment area. Hanson and Goudreau (2019) found that successful services start out small and grow geographically larger after they are established and running smoothly. When comparing small and larger-scale VDPs, both have similarly distributed drive distances, and the density of users remains constant as area and number of users increases. Habersham and Perumbeti (2019) recommended partnerships with faith-based organizations and existing stakeholder groups in order to increase capacity and reach established community groups.

Georgia's counties should start strategizing now for their future needs based on coming demographic trends. Realizing a gap in services once it has already formed will only result in social isolation and lack of access for older adults. A proactive approach to mobility programming will be vital for rural Georgia in the coming decades.

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